

Cape & Vineyard Electric Cooperative (CVEC) and Town of Harwich

Community Forum

April 17, 2010

Stephen Wiehe

Turbine Siting

Feasibility Study (March 2009) Examined Five Sites



Water Department

High School

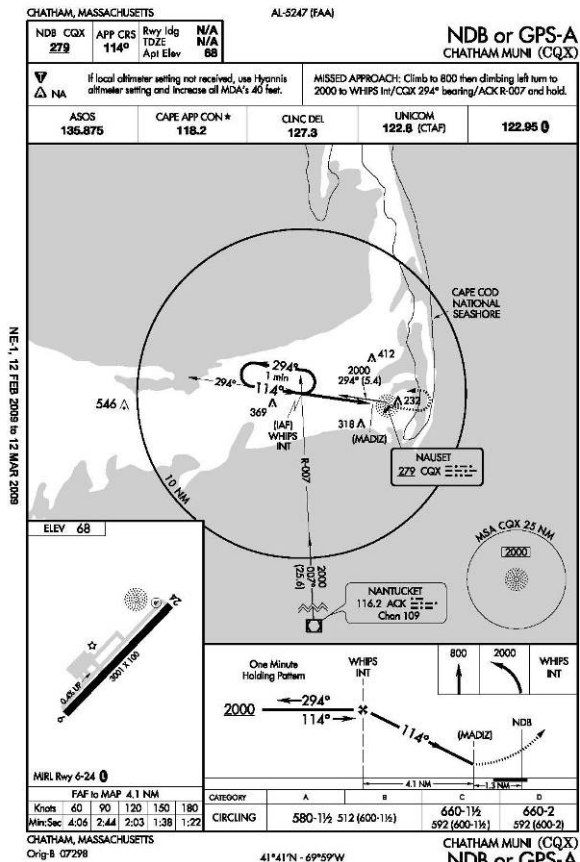
Community Center

Cranberry Golf Course

Transfer Station

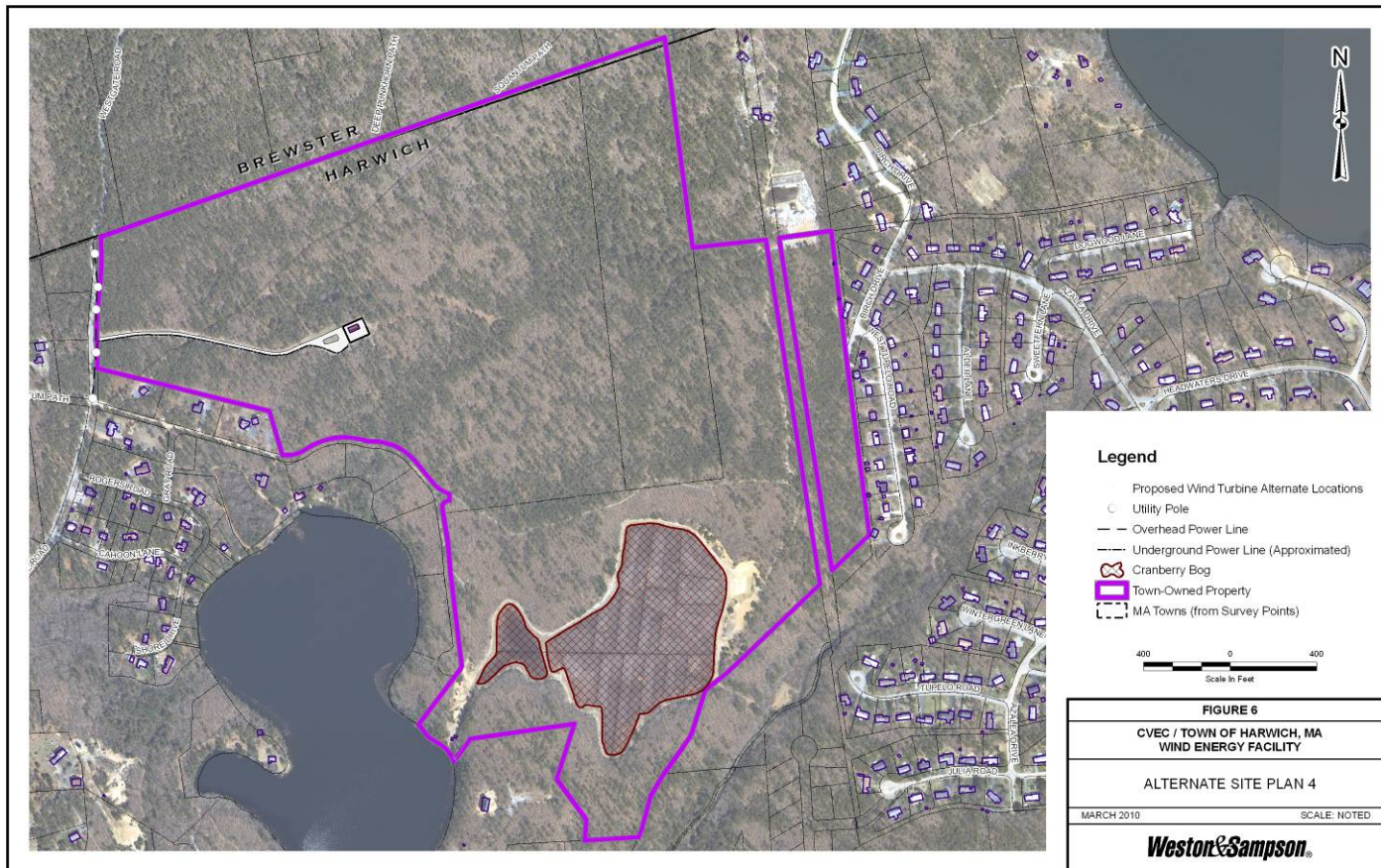
Turbine Siting

Federal Aviation Administration Height Limitations



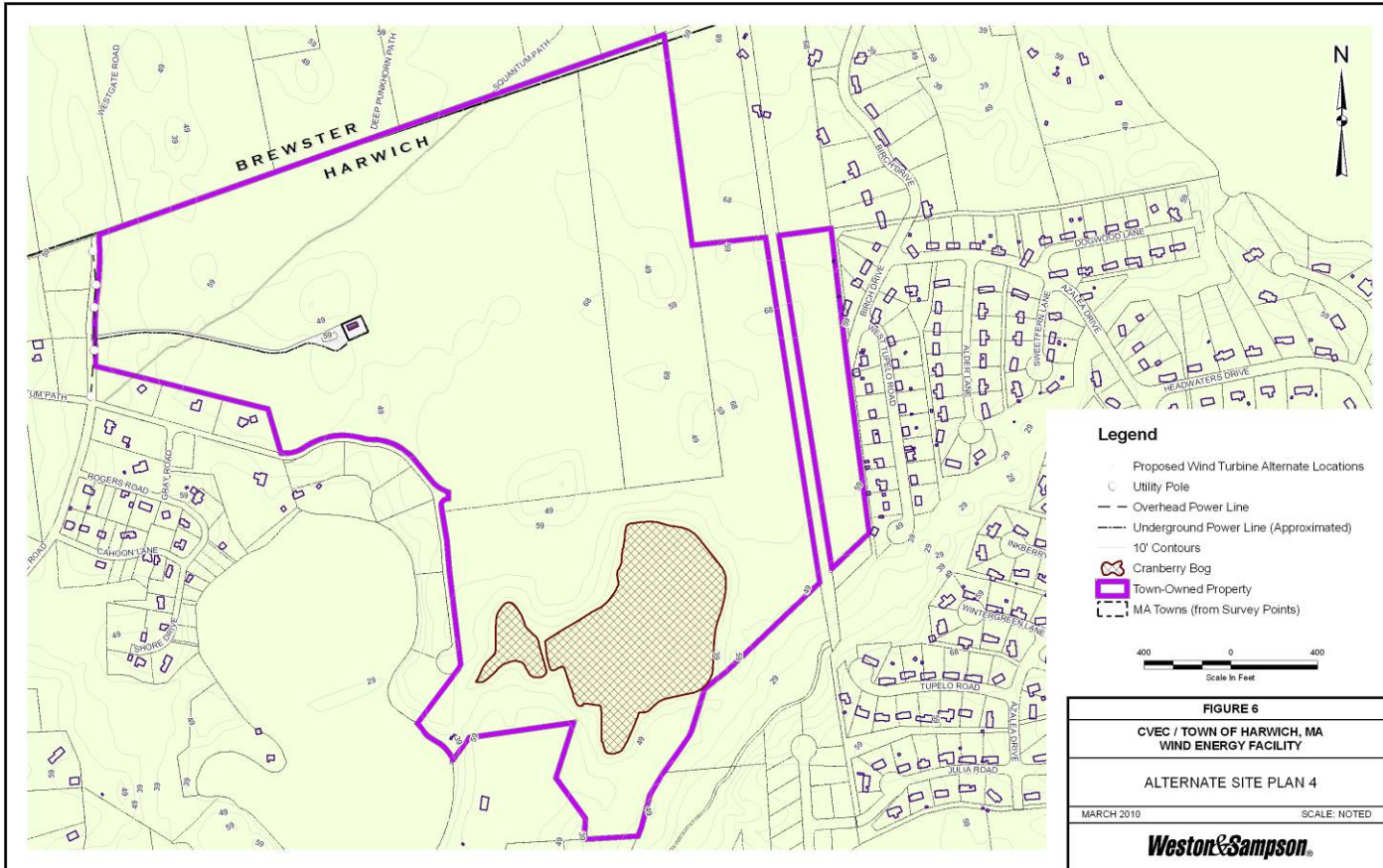
Water Department	109 feet
High School	129 feet
Community Center	129 feet
Cranberry Golf Course	129 feet
Transfer Station	129 feet

Turbine Siting

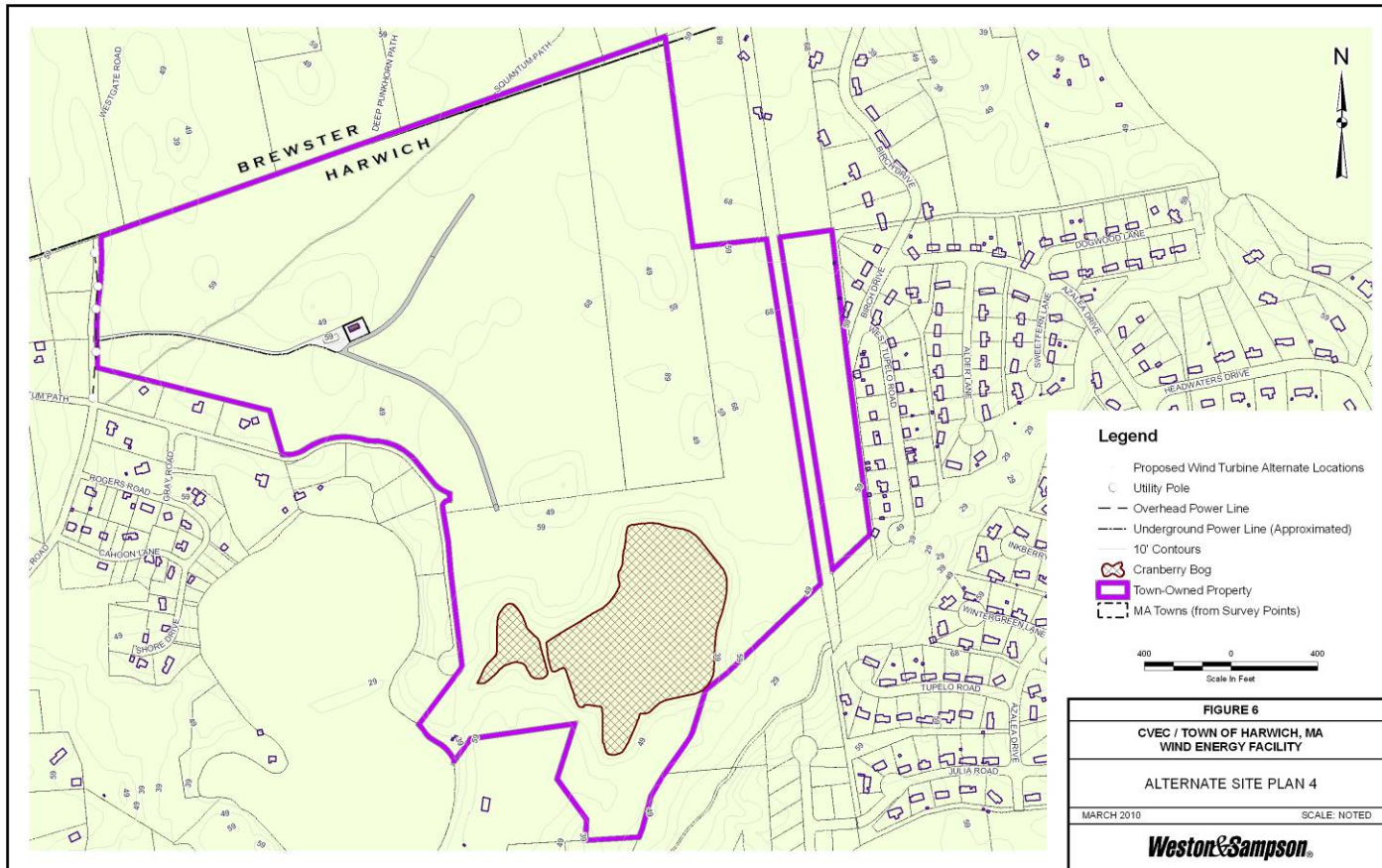


Town-Owned Property: 152 acres

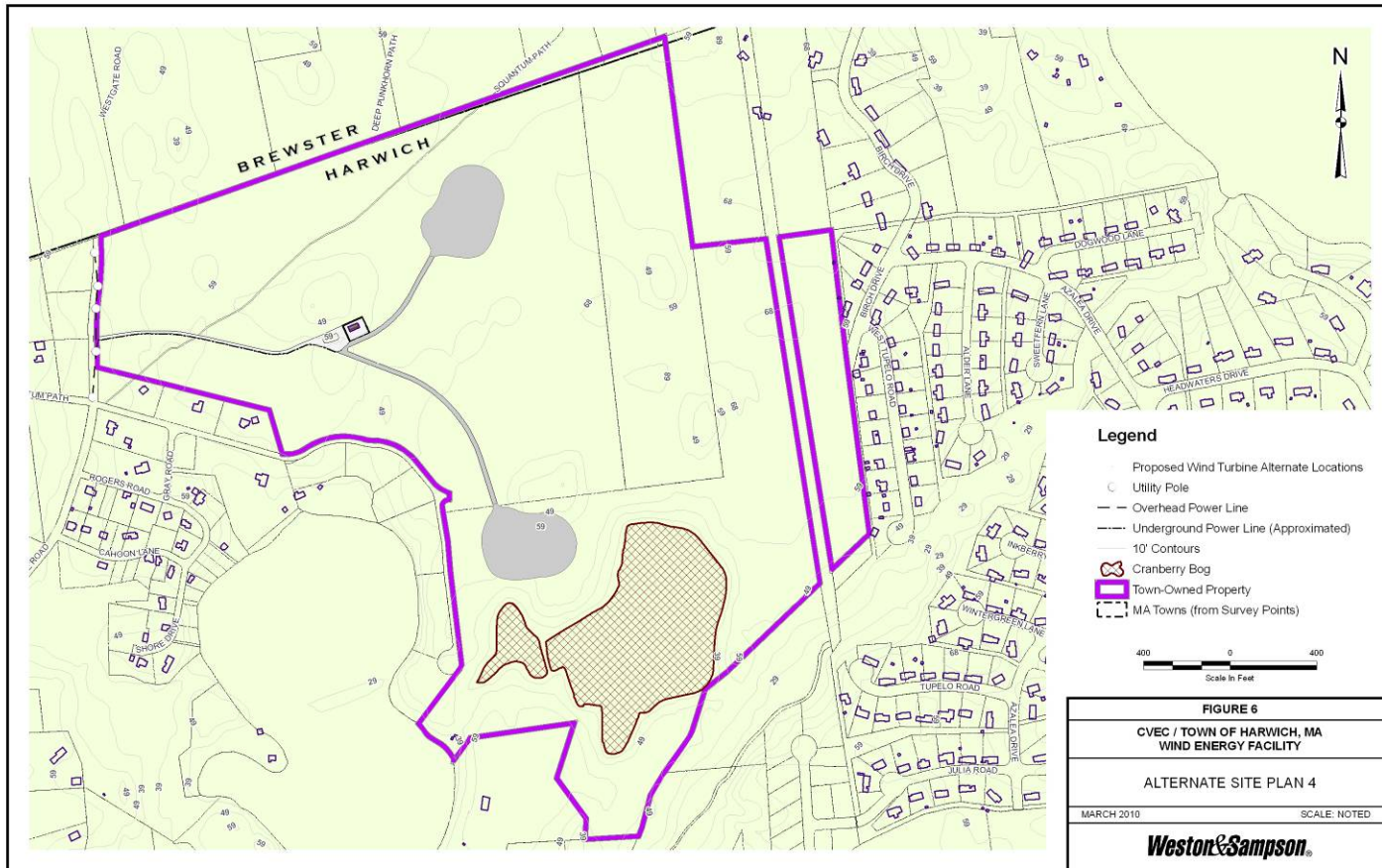
Turbine Siting



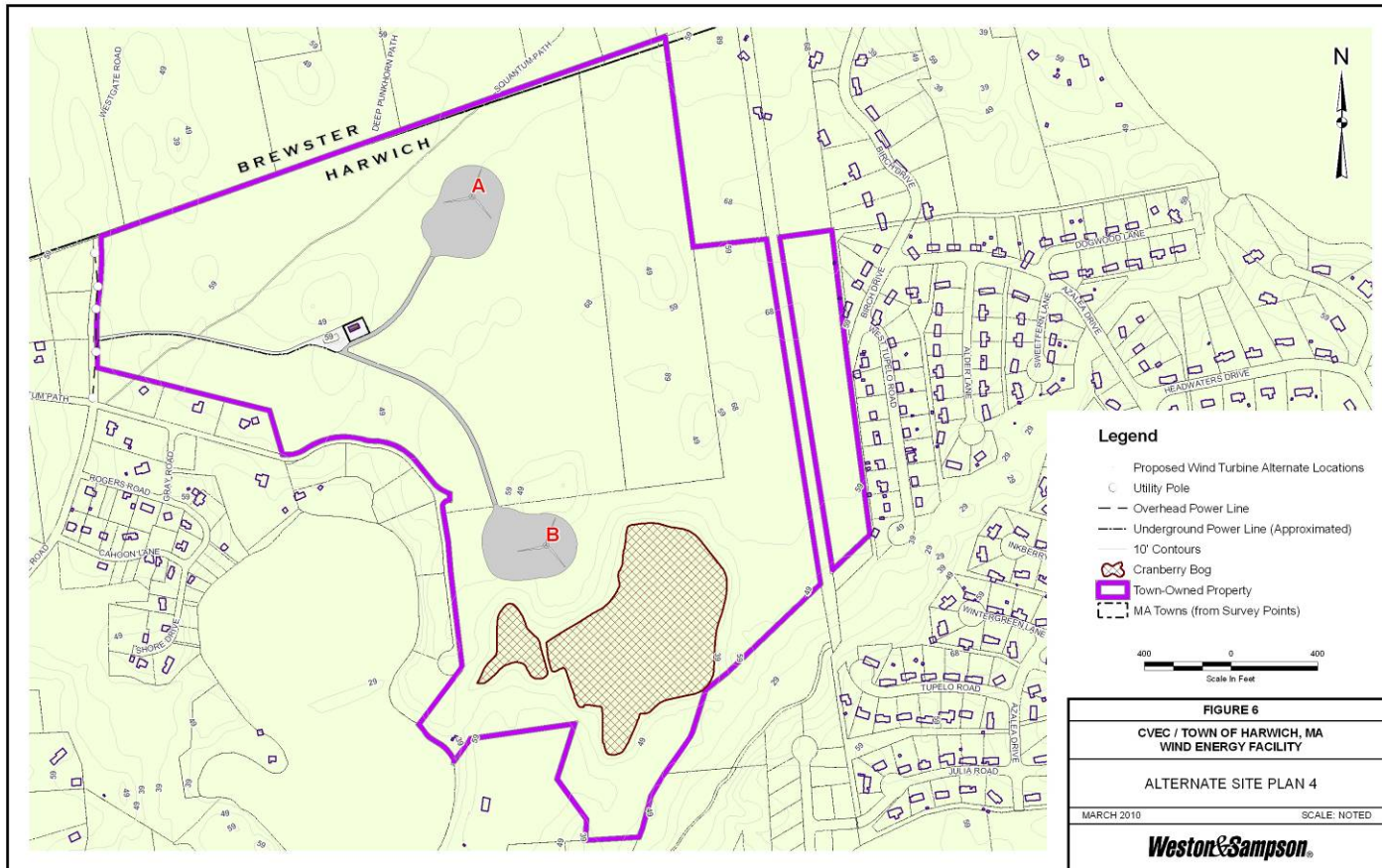
Turbine Siting



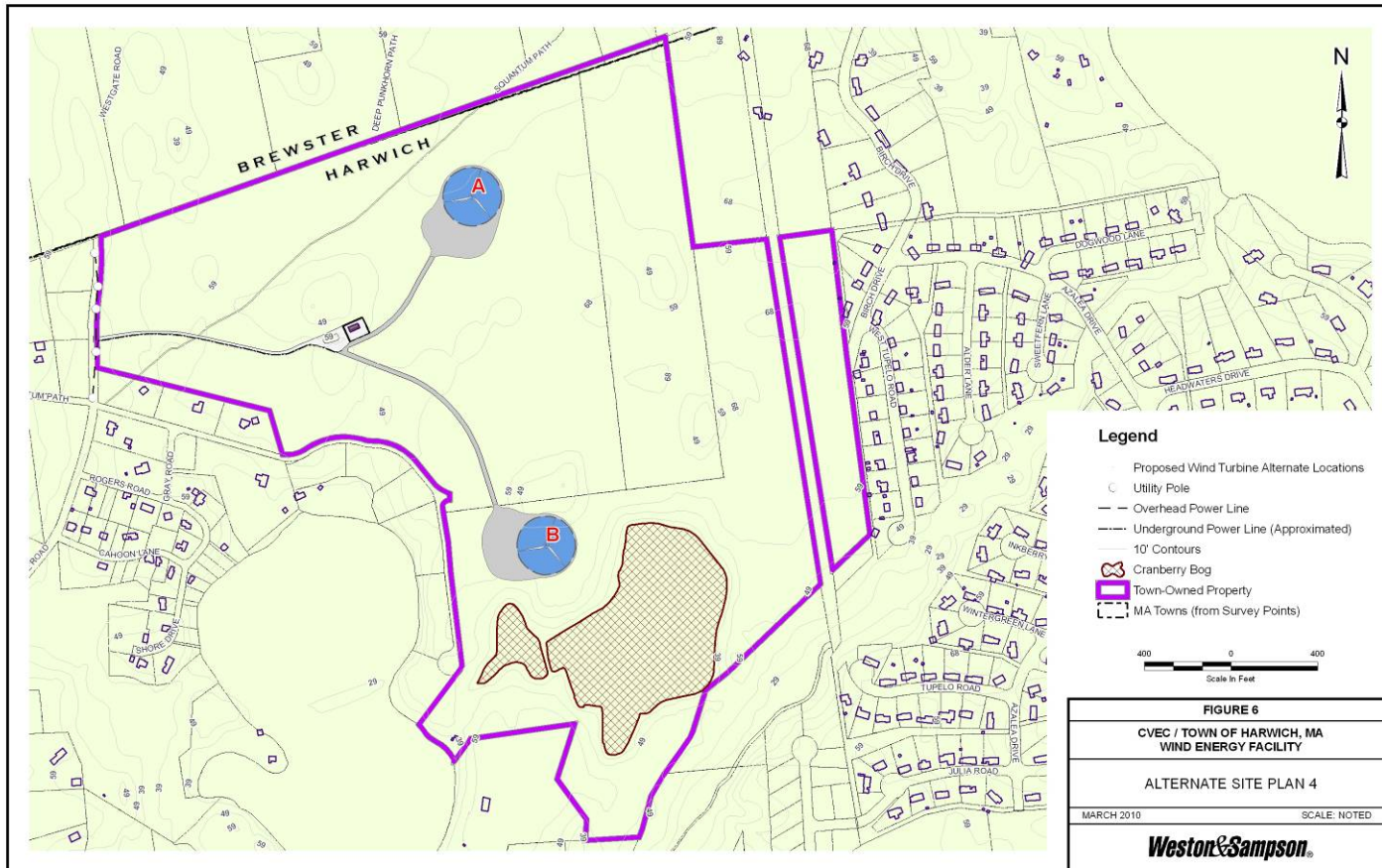
Turbine Siting



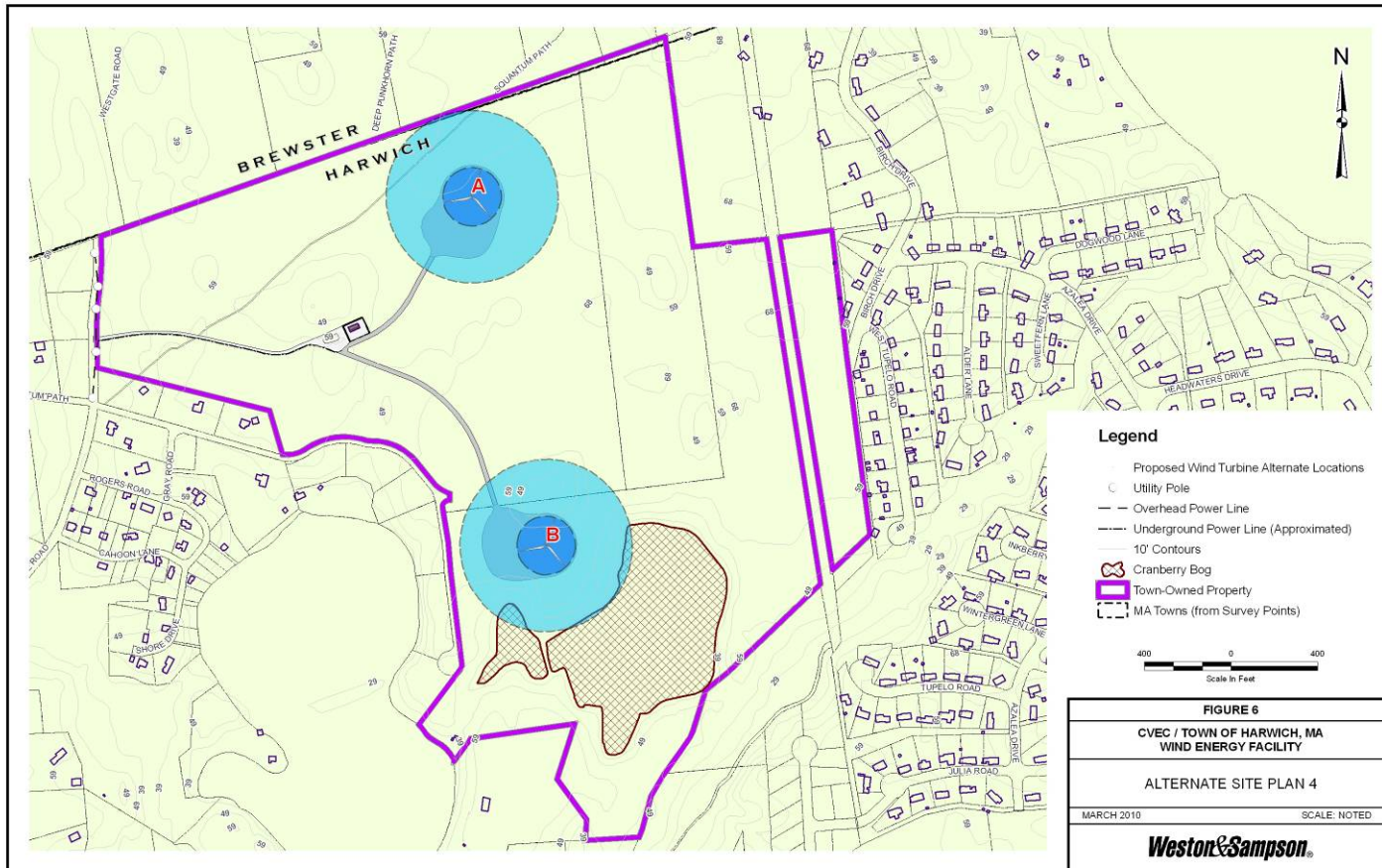
Turbine Siting



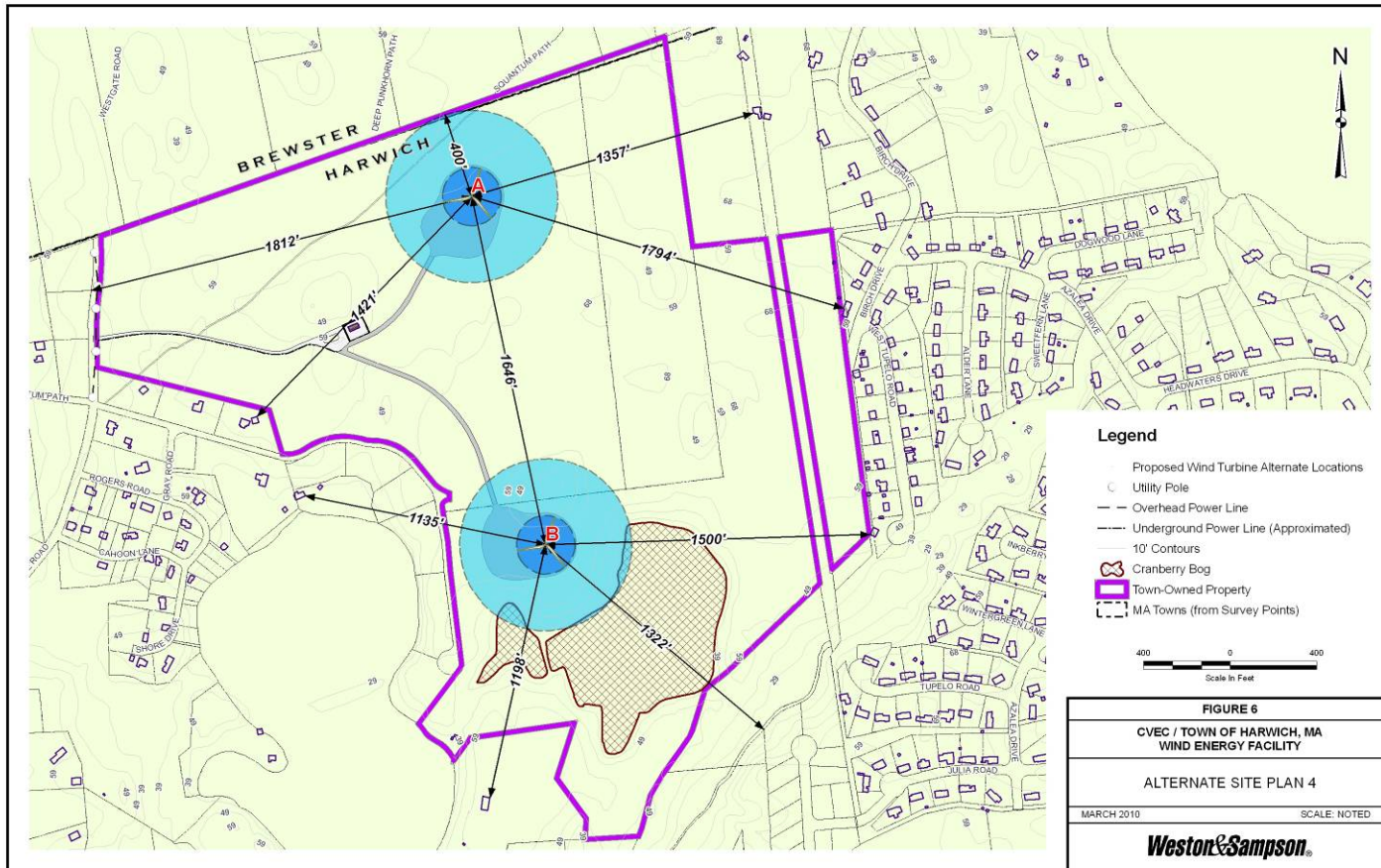
Turbine Siting



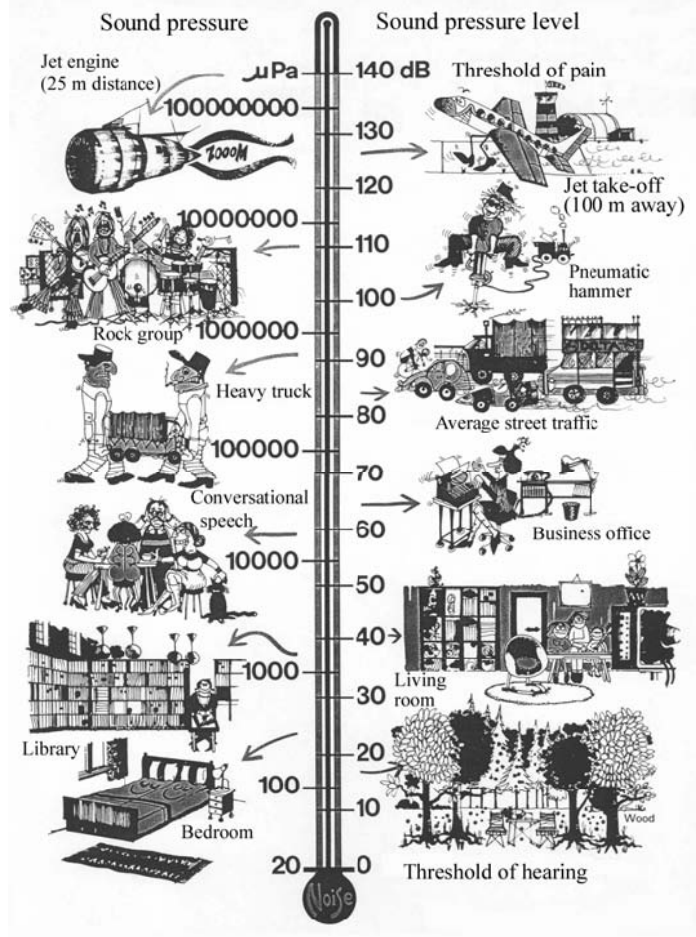
Turbine Siting



Turbine Siting



Basics of Sound

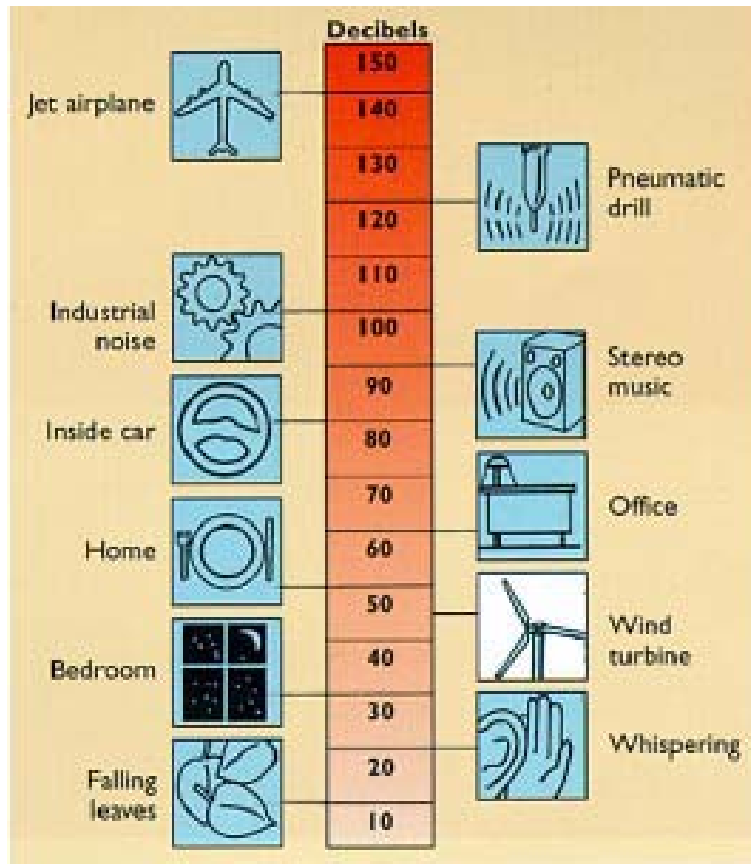


Sound is measured in decibels

A change of 3 decibel
is the minimum perceptible

A 10 decibel increase
sounds twice as loud

Wind Turbine Noise



Source: AWEA

Noise Regulations

MA DEP allows no more than a 10 dBA increase above background at property boundary

MA DEP prohibits pure tone

Harwich By-Law: same as DEP

Approach to Compliance

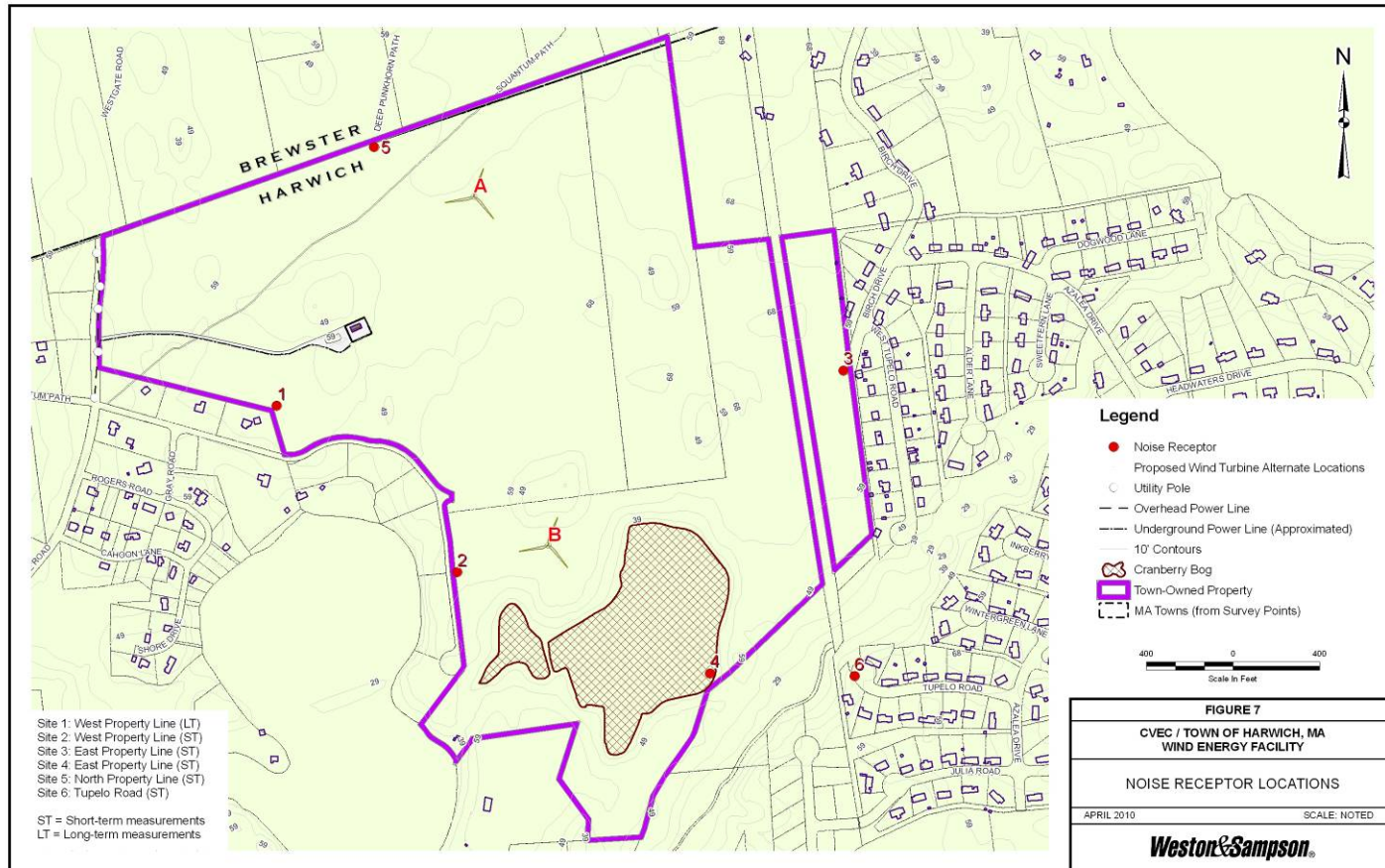
Background Sound Study

Turbine sound modeling

Prediction of boundary conditions

Verification

Background Sound Monitoring



Shadow Flicker

Shadows cast from sunlight passing through turbine blades

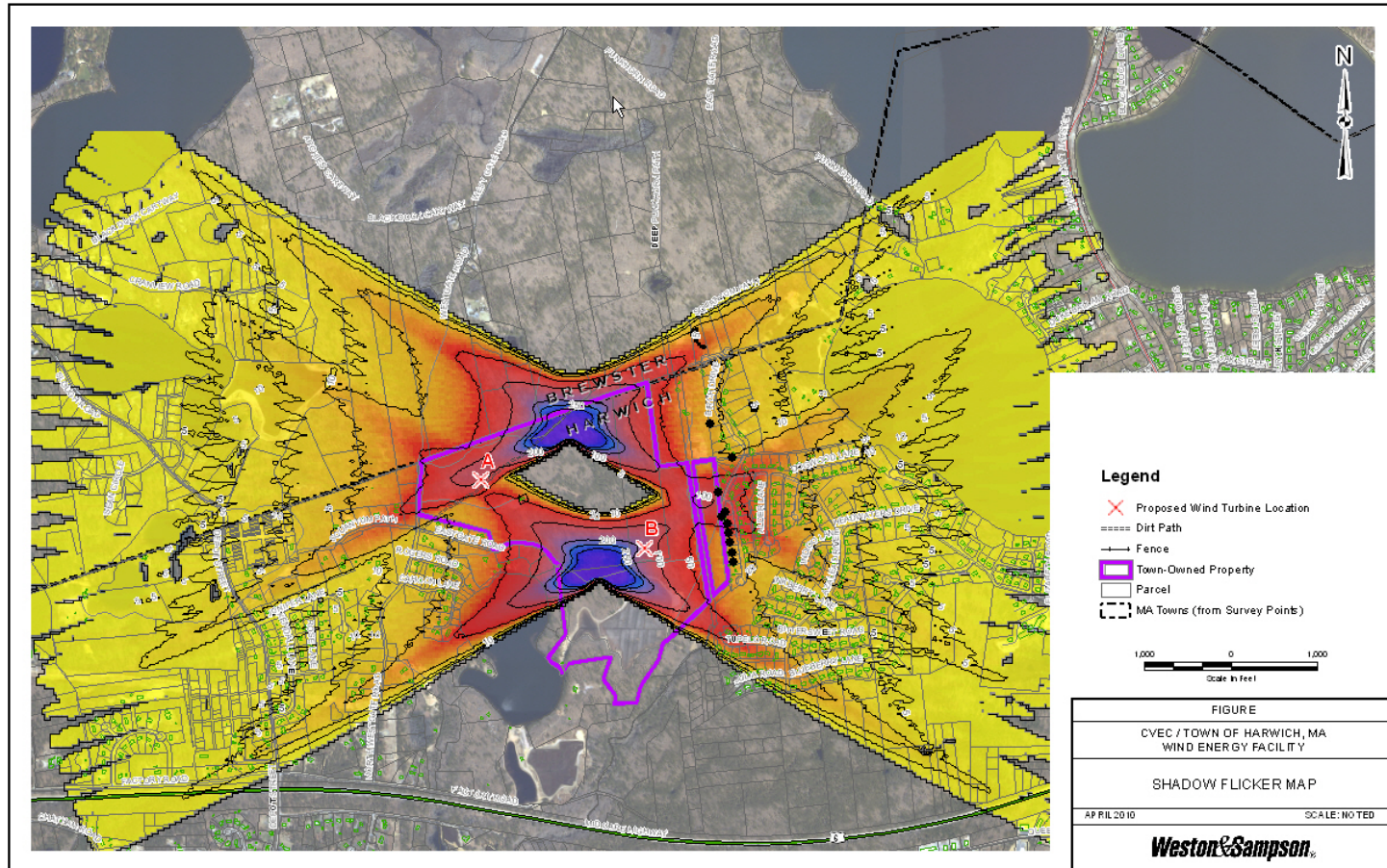
Flicker location changes with seasons

Will occur either in AM or PM based on location

Modeled in hours per year/average minutes per day

25 hours per year = 4.1 minutes per day (average)

Shadow Flicker



Avian Studies

- CVEC team will conduct “Phase I Avian and Bat Risk Assessment” at site
- Phase I represents “industry standard” first step in identifying potential avian issues
- Study will identify species of concern, potential impacts and any additional study needs

Avian Studies

- Study will include consultation with State (Natural Heritage and Endangered Species Program) and Federal (US Fish & Wildlife Service) regulators
- Report will include latest information from national and international wildlife /wind turbine interaction studies

What's it gonna look like?

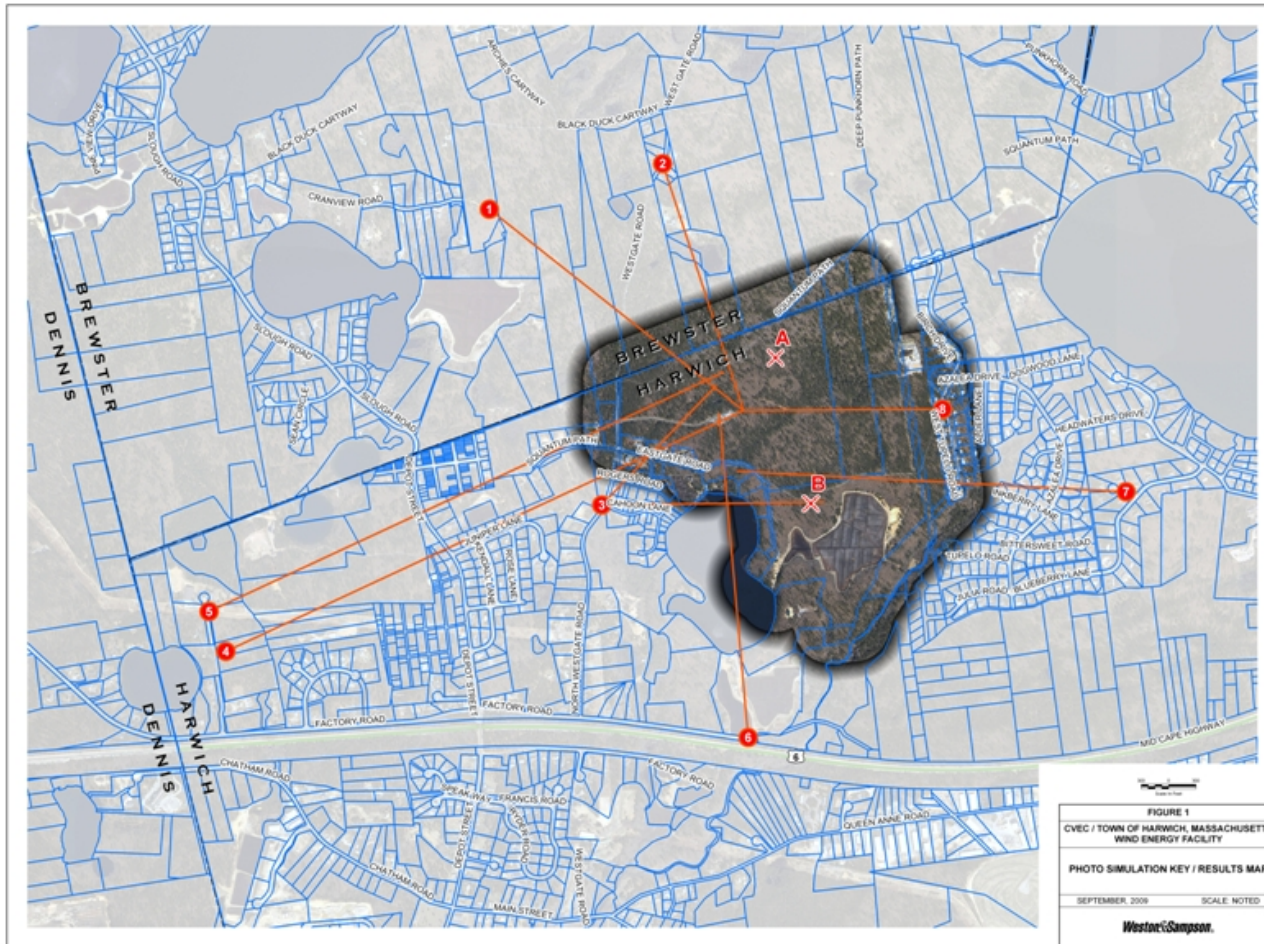


Photo Simulations



Cranview Road

Photo Simulations



Westgate Road

Photo Simulations



North Westgate Road and Cahoon Lane

Photo Simulations



Lynch Lane

Photo Simulations



Power lines near Lynch Lane

Photo Simulations



Factory Road

Photo Simulations



Red Oaks Court

Photo Simulations



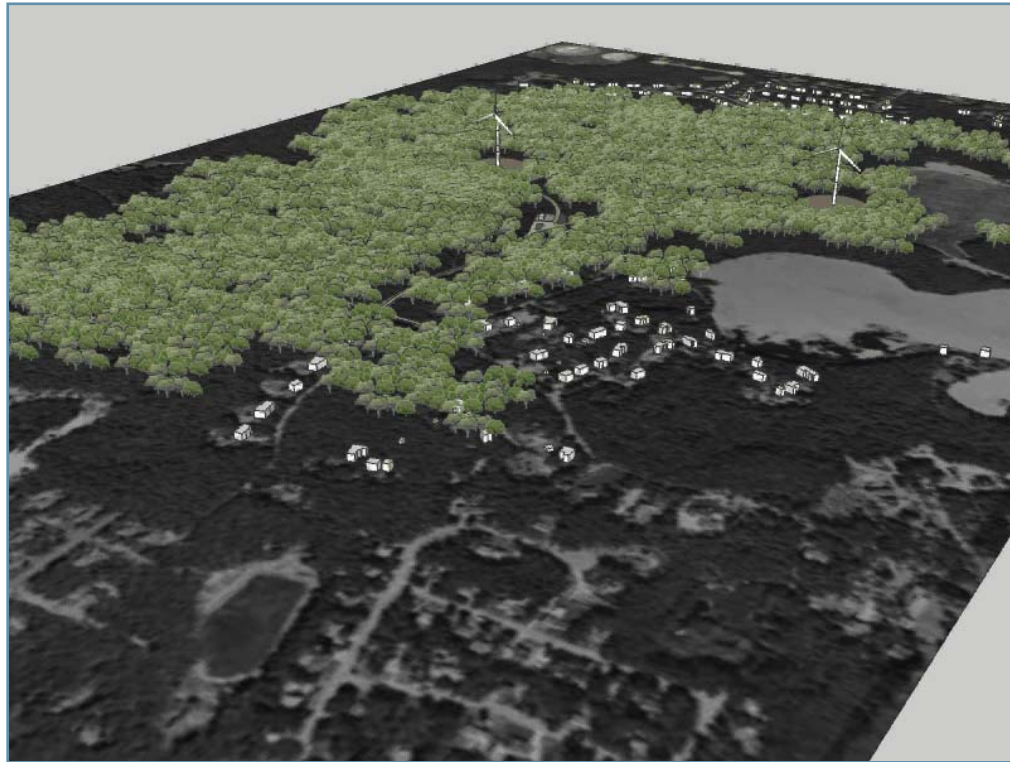
Birch Drive and West Tupelo Road

Photo Simulations



Birch Drive and West Tupelo Road

3D Simulation



Questions?